

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
10 February 2005 (10.02.2005)

PCT

(10) International Publication Number  
**WO 2005/012164 A1**

(51) International Patent Classification<sup>7</sup>: **C01B 3/00**

(21) International Application Number:

PCT/GB2004/003301

(22) International Filing Date: 30 July 2004 (30.07.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

0317894.4 31 July 2003 (31.07.2003) GB

(71) Applicant (for all designated States except US): JOHN-  
SON MATTHEY PUBLIC LIMITED COMPANY  
[GB/GB]; 2-4 Cockspur Street, Trafalgar Square, London  
SW1Y 5BQ (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): BOYD, David, Alan  
[GB/GB]; Woodside, 1 Wood Lane, Sonning Common,  
Reading RG4 9SJ (GB). OGORODNIK, Virginie [FR/GB];  
8 Dumbarton Way, Caversham Park Village, Reading RG4  
6QT (GB). PRATT, Allin, Sidney [GB/GB]; 6 The Limes,  
Crownmarsh Gifford, Wallingford OX10 8HF (GB).

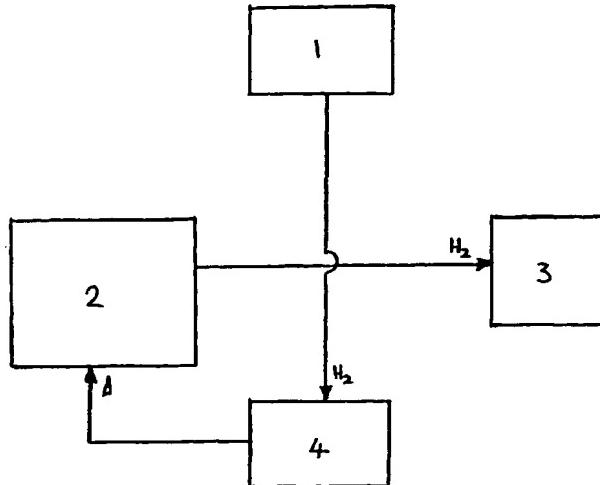
(74) Agent: NUNN, Andrew, Dominic; Johnson Matthey  
Technology Centre, Blounts Court, Sonning Common,  
Reading RG4 9NH (GB).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,  
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: HYDROGEN SUPPLY SYSTEM



WO 2005/012164 A1

(57) Abstract: A hydrogen supply system (Figure 1) comprises a first hydrogen storage material (1), which may be an AB<sub>3</sub> type material, and a second hydrogen storage material (2) which may be a MgH<sub>2</sub> type material; wherein the two hydrogen stores are separate. The first hydrogen storage material can be activated to release hydrogen at a lower temperature than can the second hydrogen storage material and at least a proportion of the hydrogen released from the first hydrogen storage material is utilised to activate the second hydrogen storage material. Hydrogen released from the second hydrogen storage material is made available to a hydrogen consumption system (3). The system is particularly suited for use as a mobile hydrogen supply, for example to provide hydrogen to a fuel cell powered vehicle.

WO 2005/012164 A1



**Published:**

— *with international search report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*